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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,154	09/30/2003	Yuusuke Sato	243374US3RD	9787
22850	7590	11/15/2006	EXAMINER	
C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			CHUO, TONY SHENG HSIANG	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/673,154

Applicant(s)

SATO ET AL.

Examiner

Tony Chuo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 8/23/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8,9,15 and 20-28 is/are pending in the application.
- 4a) Of the above claim(s) 8,9,20-22 and 24-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/26/06</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of sub-species 2c (Figure 8) in the reply filed on 8/23/06 is acknowledged. The applicant identified claims 8, 9, 15 and 20-28 as readable on the elected species. The examiner disagrees with the claims that read on the elected species. Claims 8-9, 20-22, and 24-28 do not read on sub-species 2c because embodiment of figure 8 does not include a pressurized tank connected to an upstream side of the fuel tank, a vaporizer configured to vaporize the fuel, a heat pipe, a fluid cylinder, a first buffer tank, a second buffer tank, and a check valve. Therefore, claims 8-9, 20-22, and 24-28 are withdrawn from further consideration as being drawn to a non-elected invention.

### ***Response to Amendment***

2. Claims 8, 9, 15 and 20-28 are currently pending. Claims 1-7, 10-14, and 16-19 have been cancelled. Claims 8-9, 20-22, and 24-28 are withdrawn. The objection to the specification is withdrawn. The indicated allowability of claims 15 and 23 is withdrawn in view of the newly discovered reference(s) to Okamoto, Yamauchi et al, and Nakamura et al. Rejections based on the newly cited reference(s) follow.

### ***Information Disclosure Statement***

3. The information disclosure statements (IDS) submitted on 6/26/06, 5/31/06, 12/16/05, 9/30/05, 9/21/05, 5/12/05, 4/15/05, 2/14/05, 8/10/04, and 6/24/04 were filed

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on 6/26/06, 5/31/06, 12/16/05, 9/30/05, 9/21/05, 5/12/05, 4/15/05, 2/14/05, 8/10/04, and 6/24/04. The submission is in compliance with the provisions of 37 CFR 1.97.

Accordingly, the information disclosure statements are being considered by the examiner.

### ***Drawings***

4. The drawing was received on 6/6/06. This drawing is not acceptable because there are informal corrections made on the drawing.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto (US 2003/0194354) in view of Yamauchi et al (US 2004/0013928). The Okamoto reference discloses a fuel tank "3", a reformer "8", a water tank "2", a vaporizer "6" configured to vaporize the water in the water tank, a CO oxidizer "9", and a fuel cell "17" (See Figure 1). However, Okamoto does not expressly teach a water tank comprising a first chamber coupled to an upper part of the fuel tank and a partition disposed between the first chamber and the second chamber. The Yamauchi reference discloses a water tank "18" that is coupled to the upper part of the fuel tank "16" (See

Figure 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Okamoto fuel cell system to include a water tank comprising a first chamber coupled to an upper part of the fuel tank and a partition disposed between the first chamber and the second chamber in order to simplify the system by using a single water tank to supply water to both the vaporizer and the fuel tank.

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto (US 2003/0194354) in view of Yamauchi et al (US 2004/0013928), and further in view of Nakamura et al (US 2001/0014301). The Okamoto reference discloses a fuel tank "3", a reformer "8", a water tank "2", a vaporizer "6" configured to vaporize the water in the water tank, a CO oxidizer "9", and a fuel cell "17" including a fuel electrode, an air electrode, and a polymer film between the fuel electrode and the air electrode (See Figure 1). However, Okamoto does not expressly teach a water tank coupled to the fuel tank. The Yamauchi reference discloses a water tank "18" that is coupled to the fuel tank "16" (See Figure 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Okamoto fuel cell system to include a water tank coupled to the fuel tank in order to simplify the system by using a single water tank to supply water to both the vaporizer and the fuel tank.

However, Okamoto in view of Yamauchi et al do not expressly teach a first oxygen supply unit that includes a first chamber coupled between the CO gas removal apparatus and a fuel electrode of the unit cell; a second chamber connected to an air electrode of the cell unit; and a partition disposed between the first chamber and the

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second chamber. The Nakamura reference discloses an air compressor that is coupled to the air electrode of fuel cell "5" and also between the CO remover "3" and the fuel electrode of fuel cell "5" (See Figure 1). Examiner's note: The first chamber is construed as the pipe leading from the tee connector to the pipe between the CO remover and the fuel cell. The second chamber is construed as the pipe leading from the tee connector to the air electrode of the fuel cell. The partition is construed as the tee connector connecting the air compressor to the air electrode of the fuel cell and the pipe between the CO remover and the fuel electrode of the fuel cell. Further, the claim does not require the first chamber to be filled with hydrogen or that the first chamber not be in fluid communication with the second chamber. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Okamoto/Yamauchi fuel cell system to include a first oxygen supply unit that includes a first chamber coupled between the CO gas removal apparatus and a fuel electrode of the unit cell; a second chamber connected to an air electrode of the cell unit; and a partition disposed between the first chamber and the second chamber in order to simplify the system by using a single oxygen supply unit to supply air to the air electrode and the CO gas removal apparatus remover for converting carbon monoxide to carbon dioxide.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

  
SUSY TSANG-FOSTER  
PRIMARY EXAMINER